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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

2002.01.005.WS0

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on Nov 9, 2005Signature Kathy HamiltonTyped or printed name Kathy Hamilton

Application Number

10/028,571

Filed

December 20, 2001

First Named Inventor

Purva R. Rajkotia

Art Unit

2687

Examiner

Eliseo Ramos-Feliciano

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor.☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)☒ attorney or agent of record. 39,775
Registration number _____☐ attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34 _____


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November 9, 2005

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of 1 forms are submitted.

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DOCKET NO. 2002-01005.WS
Customer No. 23990

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: : PURVA R. RAJKOTIA
Serial No. : 10/028,571
Filed : December 20, 2001
For : SYSTEM AND METHOD FOR LOCATING A MOBILE
STATION IN A WIRELESS NETWORK
Group No. : 2687
Examiner : Eliseo Ramos-Feliciano

MAIL STOP AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a notice of appeal.

STATUS OF THE CLAIMS

Claims 31-60 are pending in the present application.

Claims 31-60 have been rejected.

REMARKS

In Sections 1 and 2 of the July 12, 2005, Office Action, the Examiner finally rejected Claims 31-60 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,061,565 to *Innes, et al.* (hereafter, simply "*Innes*") in view of the Admitted Prior Art and further in view of U.S. Patent No. 6,489,923 to *Bevan et al.* (hereafter, simply "*Bevan*"). The Applicant respectfully submits that the Examiner has incorrectly stated the teachings of the *Bevan* reference and has failed to establish a *prima facie* case of obviousness.

Independent Claim 31 is reproduced here for the convenience of the review panel:

31. (Previously Presented) For use in wireless network communications system comprising a plurality of base stations and a plurality of mobile stations, an apparatus for determining a distance from a base station to a mobile station, said apparatus comprising:

a distance unit associated with said base station wherein said distance unit is capable of

obtaining a two way travel time, wherein said two way travel time is a time of travel for a range signal to travel from said base station to said mobile station and to travel from said mobile station to said base station,

adjusting a value of said two way travel time to correct for signal conditions causing a time difference in arrival of said range signal at said base station,

determining a one way travel time D from:

wherein said random backoff is a time value of a chip length of a random backoff parameter of said mobile station, and

multiplying said one way travel time D by the speed of light to obtain said distance from said base station to said mobile station. (*Emphasis added*).

Independent Claims 38, 45, 53 and 56 recite analogous limitations.

In rejecting independent Claim 31, the Examiner acknowledged in the July 12, 2005 Office Action that the *Innes* reference and the Admitted Prior Art fail to teach the limitation of adjusting the travel time of a range signal from a base station to a mobile station and back again in order to correct for signal conditions. However, the Examiner asserted that the *Bevan* reference describes such an adjustment and that it would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of *Bevan* to the system of *Innes*, resulting in the invention as recited in the Applicant's claims.

The Applicant respectfully submits that the Examiner mischaracterizes the teaching of the *Bevan* reference. Furthermore, the Applicant submits that the person of ordinary skill in the art would have found the teachings of the *Bevan* reference unsuited for application to the system of the *Innes* reference and had no expectation of success in the combination of references. As a result, the Examiner has failed to establish a *prima facie* case of obviousness.

The *Bevan* reference discloses a system in which the position of a mobile station is estimated by calculating the bearing and range of the mobile station from a cellular base station site. *Bevan* states that the range, or distance, of the mobile station from the base station is determined by the well-known round trip delay (RTD) technique. *Bevan* determines the bearing of the mobile station relative to the base station by determining the direction from which the mobile station's signal is received. The base station has an array of antennas, and the *Bevan* reference describes mathematical techniques for calculating the angle of arrival of the mobile station's signal at the antenna array.

As pointed out by the Examiner on Page 2 of the Advisory Action mailed October 21, 2005, *Bevan* notes that errors in measuring angle of arrival and RTD can result in errors in estimating the range of the mobile station. However, having mentioned that the mobile station's distance from the base station is determined by the RTD technique, the *Bevan* reference contains no discussion of how to compensate for errors in the measurement of RTD. Instead, the *Bevan* discusses techniques for eliminating the effect of errors on measuring the bearing of the mobile station. Thus, having acknowledged the problems caused by errors in measuring both angle of arrival and RTD, *Bevan* teaches only how to compensate for those errors in angle of arrival. The *Bevan* reference is completely silent on how to compensate for those errors in measuring RTD.

The Applicant submits that this silence is due to the fact that the error correction schemes of the *Bevan* reference are not capable of application to the RTD technique. Instead, the schemes taught by *Bevan* are uniquely suited to the mathematical techniques it uses to determine the bearing of the mobile station relative to the base station. The *Bevan* reference describes estimating the bearing by time correlating mobile station signals received at each element of the antenna array with a reference signal in order to generate corresponding complex phasors, the complex phase components of each element are then space correlated with sample sets that represent different angles of arrival. One exemplary error compensation technique taught in *Bevan* is to apply a phase-rotation correction to the complex phasors. As such, the Applicant submits that the error compensation techniques taught in the *Bevan* reference are unsuited for

application to the RTD technique of determining the distance of a mobile station from a base station.

Thus, the *Bevan* reference does not disclose a method and apparatus for adjusting a value of a travel time to correct for signal conditions causing a time difference in arrival of a range signal at a base station, as asserted by the Examiner. Furthermore, the person of ordinary skill in the art at the time of the Applicant's invention would not have been led to apply the teachings of *Bevan* to the system of *Innes*, and would have had no expectation of success in combining the two references. As a result, the Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness and, without more, the Applicant is entitled to grant of a patent.